

AMSH1 THNEFTTITHVIVP--KQSAGPDYCDMEHVEELFNVDQDH--LITLGNWITPTQTAFLS
AMSH2 THNEFTTITHVIVP--KQSAGPDYCDMEHVEELFNVDQDH--LITLGNWITPTQTAFLS
AMSH MREFTTITHVLIP--KQSAGSDYCNTEHEELFLIQDQGH--LITLGNWITPTQTAFLS
Rpn11 TVRVIDVTAMPQS--GTGVSVEAVDPVQAKMLDMIXQGREPMVVGWYHSFEGFGCNLS
Jab1 TMIIMDSIALPVEGTETRVNAQAAAETMAAYIENAKQVORLENAIGHYHSFPGYGCNLS
.....
AMSH1 SVLHITHCSYQIMLPFAIAIVCSFKHKDTG-----IFRITNAGMLEVSACKKKGFH--PH
AMSH2 SVLHITHCSYQIMLPFAIAIVCSFKHKDTG-----IFRITNAGMLEVSACKKKGFH--PH
AMSH SVLHITHCSYQIMLPESVAIVCSFKFQETG-----FTKLTDHGLEISSCRQKGFH--PH
Rpn11 GVINIQSSFEALSERAVAVVVDPIQSVKGVVIDAFRLINAMMVLGHTFRQTTSNLGH
Jab1 GIEVSTQMLNQFQEPFVAVVIDPRTTISAG-----KVNIGAFRTYPRGYKPPDEGPSEYQ
.....
AMSH1 TKEPRLFSICKHV--LVKDIKI-----IVDLR
AMSH2 TKEPRLFSIQKFLSGIISGTAL-----EMFLRIGYGNGFPLLGISRSSSPSEQ
AMSH SKDPPLFCSCSHVT--VVDRAV-----TITDLR
Rpn11 INKPSIQALIHGLNRHYYSITINYRKNELEQKMLLNHKKSMMEGLITQDYSECKHNS
Jab1 TIPLNKIEDFGVHCKQYXALEVSYFKSSLDKLLLELNKYNVNTLSSSSLLINADYTTG
.....
AMSH1 -----
AMSH2 L-----
AMSH -----
Rpn11 VVKEMLELAKNNKAVKEEDKMTPEQLAKNVGKQDPKRHLETHVDVMTSNIVQCLAM
Jab1 QVFDLSEKLEQSEAQIGRGSFMLG--LETHDRKSEDKLAKATROCKTTIEAIGHLSQV
.....
AMSH1 -----
AMSH2 -----
AMSH -----
Rpn11 LOTVVFK-----
Jab1 IKDKLENQINIS

FIGURE 1

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COP9_su5_Hs	VGRLENAIGWYHSHPGYGCWLSGIDVSTQMLNQFQEPFVA--VVIDPTRTISAGKVNLG
COP9_su5_Dm	VGRMEHAVGWYHSHPGYGCWLSGINVSTQMLNQTYQEPFVA--IVVDPVRTVSAGKVCLG
COP9_su5_At	AGRLENVVGWYHSHPGYGCWLSGIDVSTQRLNQHQEPFLA--VVIDPTRTVSAGKVEIG
COP9_su5_Ce	EGRKEKVVGWYHSHPGYGCWLSGIDVSTQTLNQKFQEPWVA--IVIDPLRTMSAGKVDIG
AF2198_Arcfu	LPIGMKVFGTVHSHPSPPYPSEEDLSLFTRFGKYHIIVCY--PYDENSWKCYNRKGEEV
PH0451_Pyrho	MPHDESIKGTTFHSHPSPPYPSEEDLMFFSKFGGIHIIAAF--PYDEDSVKAFDSEGREV
TVN1035_Thevo	KPIDFSLVGSVHSHPSGITKPSDEDLRMFSLTGKIHIIVGY--PYNLKDYSAYDRSGNKV
MTH971_Metth	LPPFTGAVGSVHSHPGPVNLPAAADLHFFSKNGLFHIIIAH--PYTMETVAAYTRNGDPV
aq_1691_Aquae	ISKMEIVGVYHSHPDHPDRPSQFDLQRAFPDLSYIIFSVQ--KGKVASYRSWELKGDKF
RV1334_Myctu	EDADEVPVVIYHSHATEAYPSRTDVKLATEPDAHYVLVSTRDHRHELRSYRIVDGAVT
RadC_Ecoli	IKINASALILAHNHPSGCAEPSKADKLITERIISKSCQFMDL--RVLDHIVIGRGEYVSFA
.....HSHP.....S 'D	

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FIGURE 3

COP9_su5_Hs	VGRLENAIGWYHSHPGYGCWLSGIDVSTQMLNQOFQEPFVA--VVIDPTRTISAGKVNLG
COP9_su5_Dm	VGRMEHAVGWYHSHPGYGCWLSGINVSTQMLNQTYQEPFVA--IVVDPVRTVSAGKVCLG
COP9_su5_At	AGRLENVVGWYHSHPGYGCWLSGIDVSTQRLNQHQEPFLA--VVIDPTRTVSAGKVBIG
COP9_su5_Ce	EGRKEKVVGWYHSHPGYGCWLSGIDVSTQTLNQKFQEPWVA--IVIDPLRTMSAGKVDIG
Pad1_Dm	TGRPEMVVGWYHSHPGFGCWLSGVDINTQQSFEALSERAVA--VVVDPIQSVKG-KVVID
Pad1_Hs	TGRPEMVVGWYHSHPGFGCWLSGVDINTQQSFEALSERAVA--VVVDPIQSVKG-KVVID
Sksl_Dd	TGRDEIVIGWYHSHPGFGCWLSVDVNTQQSFEQLQSRVA--VVVDPLQSVRG-KVVID
Pad1_Sc	TGRDQMVVGWYHSHPGFGCWLSVDVNTQKSFEQLNSRAVA--VVVDPIQSVKG-KVVID
.....	HSHP.....S 'D

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FIGURE 4